2008 MONITORING NETWORK PLAN

Introduction

Since 1979 the air monitoring program has been producing an annual NETWORK REVIEW. The purpose of this report was to document that the agency was actively evaluating monitoring requirements and using resources effectively. Federal regulatory changes in December of 2006 altered this old grant requirement to require an annual monitoring network plan supplemented every five years by an assessment of the air quality surveillance system. This is the Montana Department of Environmental Quality's (MTDEQ) second monitoring network plan.

The objective of this report is to accurately describe the monitoring sites in the agency network, and identify their monitoring objectives. It should also describe any deviations in physical characteristics or operation from regulatory requirements. The report will also describe changes we anticipate making to the network in the coming year. A summary of existing network sites is provided in Table 3 of this document. Table 4 identifies site locations. Site descriptions are ordered from lowest to highest AQS number which is also alphabetically by county.

Monitoring Requirements

The minimum number of monitors required by federal regulation is specified in the series of tables copied from the Code of Federal Regulations and presented below. There is no required minimum number of monitors for carbon monoxide and nitrogen oxides. The table in Figure 1 identifies the requirements for ozone monitors.

Table D–2 of Appendix D to Part 58— SLAMS Minimum O_3Monitoring Requirements

MSA population[1,2]	Most recent 3-year design value concentrations ≥85% of any O_3NAAQS[3]	Most recent 3-year design value concentrations <85% of any O_3NAAQS[3,4]
>10 million	4	2
4–10 million	3	1
350,000–<4 million	2	1
50,000–<350,000[5]	1	0

Figure 1 – Ozone Monitoring Requirements

Montana has three MSAs with populations between 50,000 and 350,000. The design value for Billings was determined during 2005-2007 to be 0.059 ppm or 78.7% of the National Ambient Air Quality Standard (NAAQS). Measurements made in the Missoula MSA suggested a lower design value. No measurements of ozone have been made in Great Falls.

The minimum number of required PM_{10} sites is established by the table in Figure 2. None of Montana's three MSAs meets the requirement for medium concentration, so no PM_{10} sites are required.

Table D–4 of Appendix D to Part 58. PM_{10} Minimum Monitoring Requirements (Number of Stations per MSA)[1]

Population category	High concentration[2]	Medium concentration[3]	Low concentration[4,5]
>1,000,000	6–10	4–8	2–4
500,000–1,000,000	4–8	2–4	1–2
250,000–500,000	3–4	1–2	0–1
100,000–250,000	1–2	0–1	0

[1]Selection of urban areas and actual numbers of stations per area within the ranges shown in this table will be jointly determined by EPA and the State Agency.

[2]High concentration areas are those for which ambient PM10 data show ambient concentrations exceeding the PM_{10} NAAQS by 20 percent or more.

[3]Medium concentration areas are those for which ambient PM10 data show ambient concentrations exceeding 80 percent of the PM_{10} NAAQS.

[4]Low concentration areas are those for which ambient PM10 data show ambient concentrations less than 80 percent of the PM_{10} NAAQS.

[5]These minimum monitoring requirements apply in the absence of a design value.

Figure 2 – PM_{10} Monitoring Requirements

The table in Figure 3 below indicates that any of Montana's three MSA's with a $PM_{2.5}$ design value exceeding 85% of the NAAQS requires a $PM_{2.5}$ monitoring site. Missoula County meets this requirement and has a $PM_{2.5}$ monitoring site at the Health Department.

In summary, the number of air quality monitors required by regulation in an area is a function of population density and air quality. No population area in Montana has enough people to require more than one monitor for any pollutant where air quality is bad and to require any monitoring where air quality is good. MTDEQ has monitors in place where there are known air quality issues and continues to investigate suspect areas.

Table D–5 of Appendix D to Part **58**. $PM_{2.5}$Minimum Monitoring Requirements

MSA population[1,2]	Most recent 3-year design value ≥85% of any $PM_{2.5}$NAAQS[3]	Most recent 3-year design value <85% of any $PM_{2.5}$NAAQS[3,4]
>1,000,000	3	2
500,000–1,000,000	2	1
50,000–<500,000[5]	1	0

[1]Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

[2]Population based on latest available census figures.

[3]The $PM_{2.5}$National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

[4]These minimum monitoring requirements apply in the absence of a design value.

[5]Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Figure 3 – $PM_{2.5}$ Monitoring Requirements

MTDEQ's air monitoring sites meet all of the EPA's siting requirements with the few exceptions described below, and they are all operated to conform with EPA requirements for quality control and quality assurance for SLAMS sites.

Monitoring Sites

30-013-0001 Great Falls-Overlook Park

This site was established in 2001 to monitor carbon monoxide continuously. It is microscale representative, and its monitoring objective is to track compliance with the NAAQS for the "Limited Maintenance Plan" in the 10th Avenue CO nonattainment corridor. A continuous $PM_{2.5}$ monitor was added to the site during the spring of 2008 to provide near, real-time particulate data for use on the "todaysair" website.

30-013-1026 Great Falls-High School

This site has been monitoring $PM_{2.5}$ since January 2000. The neighborhood scale site is near the center of the city, and was established to monitor population exposure to area $PM_{2.5}$ emissions. The monitor is in the corner of a large football field and about 5 meters from each of two roadways. While this is undesirably close to the roads, one dead-ends at the end of the block, and the other has very little traffic.

30-029-0007 Columbia Falls-Ball Park

This collocated PM_{10} site began operating in 2006 and exists to demonstrate continued compliance with the NAAQS in the Columbia Falls PM_{10} nonattainment area. $PM_{2.5}$ monitoring was added in 2008. The site is neighborhood scale and located in the corner of a park between an industrial park to the North and a residential neighborhood to the South. A tree partially obstructs about 90 degrees to the East, and the monitors are closer than desirable to the adjacent roadways which are paved and have very low traffic volumes.

30-029-0009 Whitefish-Dead End

This particulate site monitors both PM_{10} and $PM_{2.5}$. It is located at the end of 10th Street near the point where US 93 crosses the Whitefish River. The site is representative at the neighborhood scale and was installed to provide continuing monitoring for the PM_{10} nonattainment area designated in 1993, and to assess population exposure to fine particulate. It also provides continuous particulate data for the local burning control program.

30-029-0010 Kalispell-Moose's Saloon

This microscale carbon monoxide site is on the south side of Idaho Ave. near the intersection of Idaho & Main in downtown Kalispell. Exceedances of the CO NAAQS were measured across the street from this site in 1996, and subsequent studies have shown this to be the highest carbon monoxide area in Kalispell. The site was established in 2003 to monitor continuing compliance with the NAAQS.

30-029-0047 Kalispell-Flathead Electric

This particulate site was installed in 1999 to consolidate particulate monitoring in Kalispell. The site is neighborhood scale and provides population exposure information for both PM_{10} and $PM_{2.5}$. It also provides continuous particulate data for the county's burning control program, and demonstrates continuing compliance with the NAAQS in the Kalispell PM_{10} nonattainment area designated in 1990.

30-031-0006 Bozeman-Wastewater Treatment Plant

This $PM_{2.5}$ site is located at the north-west corner of Bozeman adjacent to the wastewater treatment plant. It is neighborhood scale, and it was positioned to measure down-slope flow from Bozeman toward Belgrade. While the site does represent some population, it's principle function is to provide information on fine particulate dynamics in the Gallatin Valley. Continuous $PM_{2.5}$ monitoring was added in early 2008 to provide near, real-time particulate data for use on the "todaysair" website.

30-031-0008 Belgrade-ConAgra

This $PM_{2.5}$ site is located close to the center of the community. It is neighborhood scale and provides exposure information for the population. This site consistently measures the highest values in the Gallatin Valley. Land use changes may force us from this site in the near future.

30-031-0013 West Yellowstone-Park Entrance

This site monitors carbon monoxide and $PM_{2.5}$. It was established in 1998 to measure CO at the park entrance, and it followed the park entrance about ¼ mile into the park during the spring of 2008. It is microscale in its representation. Continuous $PM_{2.5}$ monitoring was added in 2003. The site is very close to the entrance roadway and it is surrounded by tall trees. Air flow at monitoring height is up and down the roadway. Results are relevant to only the immediate locale. This site is funded by the National Park Service, but operated to EPA requirements.

30-031-0016 West Yellowstone-City Center

This site was established in 2007 to monitor community wide exposure to carbon monoxide and fine particulate. It is in the center of town and it is neighborhood scale in its representation. Like the Park Entrance site, this site is funded by the National Park Service, but operated like an EPA SLAMS site.

30-049-0018 Helena-Lincoln School

This neighborhood scale site has been monitoring population exposure to particulate since 1989. It is currently measuring $PM_{2.5}$ both continuously and at three day intervals.

30-049-0026 Helena-Rossiter Pump House

This neighborhood scale site is in the middle of an elementary school play field at the bottom of the Helena Valley. It exists to monitor population exposure to fine particulate and to track the impact of continuing development in the valley. The site has a long history of measuring PM_{10}, but it was switched to measuring $PM_{2.5}$ in January of 2007.

30-053-0018 Libby-Courthouse Annex

This neighborhood scale site is on the roof of the Courthouse Annex in the center of Libby, MT. It has been in operation since 1987. It is currently measuring particulate for population exposure and compliance with the NAAQS in the PM_{10} and $PM_{2.5}$ nonattainment areas.

30-063-0005 Missoula-Malfunction Junction

This microscale site exists to track continuing compliance with the carbon monoxide NAAQS in the Missoula CO nonattainment area. It operates only during the winter quarters when Missoula is subject to inversions.

30-063-0021 Seeley Lake

This neighborhood scale site was installed along the main corridor (US 83) through town to monitor population exposure to PM_{10} and $PM_{2.5}$. Data collected since 2004 is inconclusive, but indicates that $PM_{2.5}$ is occasionally high.

30-063-0024 Missoula-Boyd Park

This neighborhood scale site has collected particulate data since 1981. It currently monitors PM_{10} continuously to demonstrate continuing compliance with the NAAQS in the Missoula PM_{10} nonattainment area.

30-063-0031 Missoula-Health Department

This neighborhood scale site is located on the roof of the city-county health department . It has monitored particulate since 1985. The site is currently a Speciation Trends $PM_{2.5}$ site. It also samples $PM_{2.5}$ and $PM_{10.}$ The site's objective is to monitor population exposure to particulate and compliance with the NAAQS.

30-081-0007 Hamilton-PS#46

This neighborhood scale site is located in parking spot number 46 in the sheriff's lot at the corner of Madison and 3rd Street South. It has both continuous and FRM $PM_{2.5}$ monitors. The site was established in 2005 less than a block away from our former site on the Courthouse roof to monitor population exposure and compliance with the NAAQS. The move was made to accommodate continuous monitoring required for near-real-time reporting of smoke during the summer wildfire season. The site is on a paved lot within 5 meters of a gravel alley and Madison St. which is paved. The alley sees virtually no use, and Madison street is low volume.

30-089-0007 Thompson Falls-High School

This site is located on the East side of Thompson Falls at the High School. It is neighborhood scale in its representation and it was established in 1999 to monitor population exposure to PM_{10} and $PM_{2.5}$ and compliance with the NAAQS. Thompson Falls was designated nonattainment for PM_{10} in December of 1993.

30-093-0005 Butte-Greeley School

This neighborhood scale site is located at an elementary school in a residential neighborhood on the north side of Butte near the current mining activity. The site monitors population exposure to particulate. Continuous PM10 monitoring provides response capability for the burning control program and monitors compliance with the NAAQS. PM2.5 compliance is measured with an FRM sampler. Butte was designated nonattainment for PM_{10} in 1990.

30-093-0009 Butte-Front Street

This site is in the parking lot of the Butte-Silverbow Health Department office. It was established in 2007 and it is neighborhood scale representative. It provides continuous $PM_{2.5}$ data for assessing population exposure.

30-111-0066 Billings-Coburn Rd.

This neighborhood scale site is located on high ground south of the Conoco and Exxon refineries. It is a major receptor for SO_2 and exists to monitor compliance with the federal and state SO_2 standards.

30-111-0085 Billings-St. Luke's

This micro scale carbon monoxide site is in downtown Billings at the corner of 2nd Ave. North and North 32nd Street. This site was installed to demonstrate Billings' continuing compliance with the CO NAAQS. Continuous $PM_{2.5}$ monitoring was added in the spring of 2008 to provide near, real-time particulate data for the "todaysair" website.

30-111-0086 Shepherd-Bus Barn

This neighborhood scale site was located to receive maximum ozone impact from Billings. It is about ten miles north-east of Billings in the Yellowstone River valley. It began monitoring nitrogen oxides and ozone in June of 2005. The values measured were too low to require continued monitoring, so the site was closed in January 2008.

30-111-1065 Billings-Lockwood Park

This neighborhood scale particulate site is located at Lockwood Park on Old Hardin Road at the east end of Billings. It has monitored population exposure to $PM_{2.5}$ since 1999.

All of these sites meet the requirements of 40 CFR part 58 Appendices A, C, and D. Three sites do not meet all of the siting requirements of Appendix E. Sites 30-013-1026 and 30-081-0007 are less than 15 meters from roadways and site 30-063-0021 has partially obstructed air flow.

$PM_{2.5}$ monitoring sites, representative of a smaller than neighborhood spatial scale, are not eligible for comparison to the annual $PM_{2.5}$ NAAQS. Data from such sites is eligible for comparison to only the 24 hour $PM_{2.5}$ NAAQS. The only MTDEQ $PM_{2.5}$ site of this nature is the microscale site at the west entrance to Yellowstone National Park (30-031-0013). All other $PM_{2.5}$ monitors can be compared to the Annual NAAQS.

If circumstances should make it necessary or desirable to relocate a violating $PM_{2.5}$ monitor, the change would be discussed among an existing local program, Air Quality Permitting, the Air Planning Section and the Air Monitoring Section. The Air Monitoring Section would seek public comment through the annual Monitoring Network Plan and would seek EPA approval for the change. No such change would ever be made without demonstrating that a replacement site produced comparably high values unless circumstances precluded such a comparison. Montana does not have any community monitoring zones or

anticipate creating one, so the impact of relocating a site on such zones is not relevant.

Proposed Changes

In May and June of 2008 MTDEQ reorganized continuous $PM_{2.5}$ monitors to add continuous monitoring to Great Falls, Bozeman, and Billings while retaining this capability where it already existed. The objective was to convert all data appearing on the agency's "todaysair" website to $PM_{2.5}$ and eliminate the confusion associated with presenting a mixture of PM_{10} and $PM_{2.5}$ data. The todaysair web site was created to present near, real-time particulate information primarily during the summer wild fire season, and from its inception has presented all of the continuous particulate data available whether it was PM_{10} or $PM_{2.5}$. While this is adequate for informing the public of the risks of the very high particulate concentrations associated with summer fires, it has created confusion during other more normal seasons and circumstances. It was also decided that these three most populous cities in Montana should be added to the website because, even though they don't have problems with attainment of the National Ambient Air Quality Standards, they can be heavily impacted by smoke during the summer wild fire season.

As part of the above endeavor, we propose to add continuous PM2.5 monitoring to the Boyd Park site in Missoula. We hope to accomplish this during July, and complete the transition from presenting mixed particulate data on the near, real-time website to presenting only PM2.5 data.

MTDEQ monitors carbon monoxide in four communities even though the measured values are low and either stable or declining (see Table 1). While

Year	Great Falls				Kalispell				Missoula				Billings			
	Max Hour		Max 8 Hr		Max Hour		Max 8 Hr		Max Hour		Max 8 Hr		Max Hour		Max 8 Hr	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
1995	13.9	13.7	7.9	6.2	9.7	9.2	7.6	6.5	8.9	8.5	7.8	6.6	16.5	13.6	7.1	6.6
1996	21.9	19.1	8.5	5.4	17.4	13.4	11.4	11.1	6.7	6.7	5.8	5.6	14.8	11.1	6	4.7
1997	11.1	10	7.4	6.4	6.2	6.1	4.9	4.9	8.1	8.1	6.3	4.9	9.2	8.6	5.2	4.9
1998	10.3	8.7	5.3	4.5	6.6	6.5	5.3	5	5.7	5.6	4.7	4.7	13.3	12.8	5.9	4.8
1999	7.8	7.1	3.6	3.5	9.1	7.9	5.3	4.8	6	5.8	4.9	4.4	10	6.7	3.4	3.4
2000	6.7	6.5	4.6	3.6	8	7	4.3	4.3	5.4	4.9	3.9	3.3	10.6	8.2	5.1	4.9
2001	7.4	7.2	4.6	3.6	6	5.7	3.8	3.7	7	6.6	5.5	3.9	9	8.6	5.6	5.2
2002	7.3	5.5	3	2.8	5.4	5.3	3.4	3.3	5.7	5.2	4.6	3.6	8.9	8.5	5	4.9
2003	4.8	4.6	2.9	2.7	5	4.8	3.2	3	4.5	4.4	4	3.6	7.8	7.5	5.7	4.4
2004	7.2	5.7	3.2	2.4	5	4.7	3.2	2.9	3.9	3.6	3.2	2.9	8.1	6.8	4.4	3.7
2005	4	3.7	2	2	5.9	5.5	3.6	3.3	4.3	4.3	4.1	3.6	13.4	5.6	3.7	3.5
2006	3	2.8	2.2	1.7	5.3	4.6	3	2.6	3.1	3	2.5	2.4	5.9	4.9	2.7	2

Table 1 – Carbon Monoxide

these communities had problems with carbon monoxide in the past, those days have clearly passed. Unfortunately, regulations developed back then to control CO emissions also required monitoring to track progress, and no provision was made to ever discontinue monitoring. The agency is currently exploring its options for discontinuing this required but unnecessary carbon monoxide monitoring.

At the end of June 2008 we propose to discontinue $PM_{2.5}$ speciation sampling in Libby. Speciation of fine particulate in Libby began over six years ago when it began to appear likely that Libby was not in compliance with the $PM_{2.5}$ standard. Speciation results were useful in characterizing the problem and in documenting the effect of the wood stove change-out, but that need has passed, and it is time to make this resource available elsewhere. We propose to begin $PM_{2.5}$ speciation sampling at Butte-Greeley School on 9/01/08. The metals content of fine particulate is a matter of considerable interest in Butte.

We also propose to discontinue PM_{10} monitoring at the Missoula-Health Department site at the end of 2008. A comparison of data from the two sites in Missoula (Health Department and Boyd Park) shows no real difference between them for either maximum daily values or annual averages. See Table 2. To continue monitoring PM_{10} at both sites would be a waste of resources.

	Boyd Park					Health Department				
Year	1st Max	2nd Max	3rd Max	4th Max	Mean	1st Max	2nd Max	3rd Max	4th Max	Mean
1995	83	81	77	69	24	67	53	49	46	26
1996	113	112	102	97	24	71	51	51	50	28
1997	88	88	70	65	21	78	55	49	48	26
1998	126	73	70	69	20	72	51	50	43	23
1999	60	55	42	42	17	46	43	42	38	20
2000	164	137	120	102	21	193	115	69	69	28
2001	91	72	69	68	19	63	55	47	45	21
2002	46	44	41	40	16	43	42	39	38	20
2003	109	100	54	54	24	134	116	110	107	21
2004	86	54	52	51	22	49	47	46	45	19
2005	85	58	54	51	22	57	52	52	50	18
2006	85	80	74	70	24	51	46	42	41	23
2007	138	124	87	87	24	129	54	52	46	24

Table 2 – Missoula PM_{10}

The above changes may occur. They reflect our current intensions. No changes will actually occur without additional discussions with EPA Region 8 and approval of a formal Network Modification Request.

Table 3
Existing Montana Ambient Air Monitoring Network

AQS Number	Site City-Name	Parameter	Method	Frequency	Type	Spatial Scale	Location Type*
*H=high concentration, P=population exposure, S=source impact, B=background							
30-013-0001	Great Falls-Overlook Park	42101-CO	093[1]	Continuous	SLAMS	Micro.	H,P,S
		88502-$PM_{2.5}$	731[5]	Continuous	SPM	Middle	H,P
30-013-1026	Great Falls-High School	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
30-029-0007	Columbia Falls-Ball Park	81102-PM_{10}	125[3]	1 in 6	SLAMS	Neigh	H,P,S
		85101-PM_{10}		(collocated)			
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh	H,P
30-029-0009	Whitefish-Dead End	88502-$PM_{2.5}$	731[5]	Continuous	SPM	Neigh.	H,P
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
		81102-PM_{10}	125[3]	1 in 6	SLAMS	Neigh.	H,P
		85101-PM_{10}	125[3]	1 in 6	SLAMS	Neigh.	H,P
30-029-0010	Kalispell-Moose's	42101-CO	093[1]	Continuous	SLAMS	Micro.	H,P,S
30-029-0047	Kalispell-Flathead Electric	88502-$PM_{2.5}$	731[5]	Continuous	SPM	Neigh.	H,P
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
		81102-PM_{10}	122[4]	1 in 6	SLAMS	Neigh.	H,P
		85101-PM_{10}	122	1 in 6	SLAMS	Neigh.	H,P
30-031-0006	Bozeman-Waste Water Treatment Plant	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
		88502-$PM_{2.5}$	731[5]	Continuous	SPM	Neigh.	P
30-031-0008	Belgrade-ConAgra	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P

Table 3 (Continued)
Existing Montana Ambient Air Monitoring Network

AQS Number	Site City-Name	Parameter	Method	Frequency	Type	Spatial Scale	Location Type*
30-031-0013	West Yellowstone-Park Entrance	42101-CO	093[1]	Continuous	SPM	Micro	S
		88502-$PM_{2.5}$	731[5]	Continuous	SPM	Micro	S
30-031-0016	West Yellowstone-City Center	42101-CO	093[1]	Continuous	SLAMS	Micro	H,P
		88101-$PM_{2.5}$	170[8]	Continuous	SLAMS	Neigh.	H,P
30-049-0018	Helena-Lincoln School	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
		88502-$PM_{2.5}$	170[8]	Continuous	SPM	Neigh.	H,P
30-049-0026	Helena-Rossiter Pump House	88101-$PM_{2.5}$	142[2]	1 in 6	SLAMS	Neigh.	P
30-053-0018	Libby-Courthouse Annex	81102-PM_{10}	122[4]	Continuous	SLAMS	Neigh.	H,P
		85101-PM_{10}	122	Continuous	SLAMS	Neigh.	H,P
		$PM_{2.5}$ Speciation	810[6]	1 in 6	Supplmtl Speciation	Neigh.	H,P
		88101-$PM_{2.5}$	142[2]	1 in 3 Collocated	SLAMS	Neigh.	H,P
		88101-$PM_{2.5}$	731[5]	Continuous	SPM	Neigh.	H,P
30-063-0005	Missoula-Malfunction Junction	42101-CO	093[1]	Continuous 1st&4th quarters	SLAMS	Micro	H,P,S
30-063-0021	Seeley Lake	81102-PM_{10}	125[3]	1 in 3	SLAMS	Middle	H,P,S
		85101-PM_{10}	125	1 in 3	SLAMS	Middle	H,P,S
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P

*H=high concentration, P=population exposure, S=source impact, B=background

Table 3 (Continued)
Existing Montana Ambient Air Monitoring Network

AQS Number	Site City-Name	Parameter	Method	Frequency	Type	Spatial Scale	Location Type*
30-063-0024	Missoula-Boyd Park	81102-PM_{10}	122[4]	Continuous	SLAMS	Neigh.	H,P
		85101-PM_{10}	122	Continuous	SLAMS	Neigh.	H,P
30-063-0031	Missoula-Health Dept.	81102-PM_{10}	125[3]	1 in 6	SLAMS	Neigh.	H,P
		85101-PM_{10}	125	1 in 6	SLAMS	Neigh.	H,P
		88101-$PM_{2.5}$	142[2]	1 in 3 Collocated	SLAMS	Neigh.	H,P
		$PM_{2.5}$ Speciation	810[6]	1 in 3	Trends Speciation	Neigh.	H,P
30-081-0007	Hamilton-Parking Spot #46	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
		88502-$PM_{2.5}$	170[8]	Continuous	SPM	Neigh.	H,P
30-089-0007	Thompson Falls-High School	81102-PM_{10}	125[3]	1 in 6	SLAMS	Neigh.	H,P
		85101-PM_{10}	125	1 in 6	SLAMS	Neigh.	H,P
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P
30-093-0005	Butte-Greeley School	81102-PM_{10}	122[4]	Continuous	SLAMS	Neigh.	H,P,S
		85101-PM_{10}	122	Continuous	SLAMS	Neigh.	H,P,S
		88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P

*H=high concentration, P=population exposure, S=source impact, B=background

Table 3 (Continued)
Existing Montana Ambient Air Monitoring Network

AQS Number	Site City-Name	Parameter	Method	Frequency	Type	Spatial Scale	Location Type*
*H=high concentration, P=population exposure, S=source impact, B=background							
30-093-0009	Butte-Front Street	88502-$PM_{2.5}$	731[5]	Continuous	SPM	Neigh.	H,P
30-111-0066	Billings-Coburn Road	42401-SO_2	100[7]	Continuous	SLAMS	Neigh.	H,S
30-111-0085	Billings-St. Luke's	42101-CO	093[1]	Continuous	SLAMS	Micro.	H,P,S
		88502-$PM_{2.5}$	731[5]	Continuous	SPM	Micro.	P
30-111-1065	Billings-Lockwood Park	88101-$PM_{2.5}$	142[2]	1 in 3	SLAMS	Neigh.	H,P

[1]Teledyne-API Model 300. Nondispersive infrared-equivalent method.
[2]BGI-PQ200 with very sharp cut cyclone. Federal Reference Method.
[3]BGI-PQ200 with WINS eliminator. Federal Reference Method.
[4]MetOne BAM 1020. Beta attenuation monitor-equivalent method.
[5]MetOne BAM 1020 with $PM_{2.5}$ sharp cut cyclone. Beta attenuation monitor.
[6]MetOne Speciation Air Sampling System.
[7]Teledyne-API Model 100. Ultraviolet fluorescence-equivalent method.
[8]MetOne FEM-BAM 1020 with $PM_{2.5}$ very sharp cut cyclone. Beta attenuation monitor-equivalent method.

Table 4
Montana Monitoring Site Locations

AQS Number	Site Name	Address	MSA/Code	Latitude	Longitude
30-013-0001	Overlook Park	10th Ave.S. and 2nd St. E. Great Falls	Great Falls/24500	47.49417	-111.30278
30-013-1026	High School	3rd Ave. S. and 17th St. E. Great Falls	Great Falls/24500	47.20222	-111.27889
30-029-0007	Ball Park	C St. and 4th Ave. E N Columbia Falls		48.38111	-114.17472
30-029-0009	Dead End	End of 10th St. Whitefish		48.39972	-114.33361
30-029-0010	Moose's Saloon	Idaho Ave. Kalispell		48.20229	-114.31349
30-029-0047	Flathead Electric	Center St. and Woodland Ave. Kalispell		48.2025	-114.30556
30-031-0006	Wastewater Treatment Plant	2545 Springhill Rd. Bozeman		45.72631	-111.0673
30-013-0008	ConAgra	100 S. Broadway Belgrade		45.77277	-111.1775
30-013-0013	Park Entrance	West Entrance to Yellowstone National Park		44.65777	-11109083
30-013-0016	City Center	West Yellowstone		44.6617	-111.1049

Table 4 (Continued)
Montana Monitoring Site Locations

AQS Number	Site Name	Address	MSA/Urbanized Area	Latitude	Longitude
30-049-0018	Lincoln School	1325 Poplar St. Helena		46.60388	-112.03527
30-049-0026	Rossiter Pump House	1497 Sierra Rd. East Helena		46.6588	-112.0123
30-053-0018	Courthouse Annex	418 Mineral Ave. Libby		48.38416	-115.54805
30-063-0005	Malfunction Junction	Fairgrounds Missoula	Missoula/33540	46.84889	-114.01611
30-063-0021	Seeley Lake	Seeley Lake	Missoula/33540	47.1771	-113.4827
30-063-0024	Boyd Park	3100 Washburn Rd. Missoula	Missoula/33540	46.84222	-114.01972
30-063-0031	Health Dept.	301 West Alder Missoula	Missoula/33540	46.87491	-113.99525
30-081-0007	Parking Spot #46	Madison and 3rd St. S. Hamilton		46.24563	-114.15886
30-089-0007	High School	Golf and Haley Thompson Falls		47.59639	-115.32361
30-093-0005	Greeley School	Butte		46.0027	-112.5004
30-093-0009	Front Street	Butte		45.9988	-112.5366

Table 4 (Continued)
Montana Monitoring Site Locations

AQS Number	Site Name	Address	MSA/Urbanized Area	Latitude	Longitude
30-111-0066	Coburn Road	Coburn Hill Rd. Billings	Billings/13740	45.78667	-108.45778
30-111-0085	Saint Luke's	2nd Ave. N. and N. 32nd St. Billings	Billings/13740	45.78218	-108.51153
30-111-1065	Lockwood Park	Old Hardin Road Lockwood	Billings/13740	45.80194	-108.42611